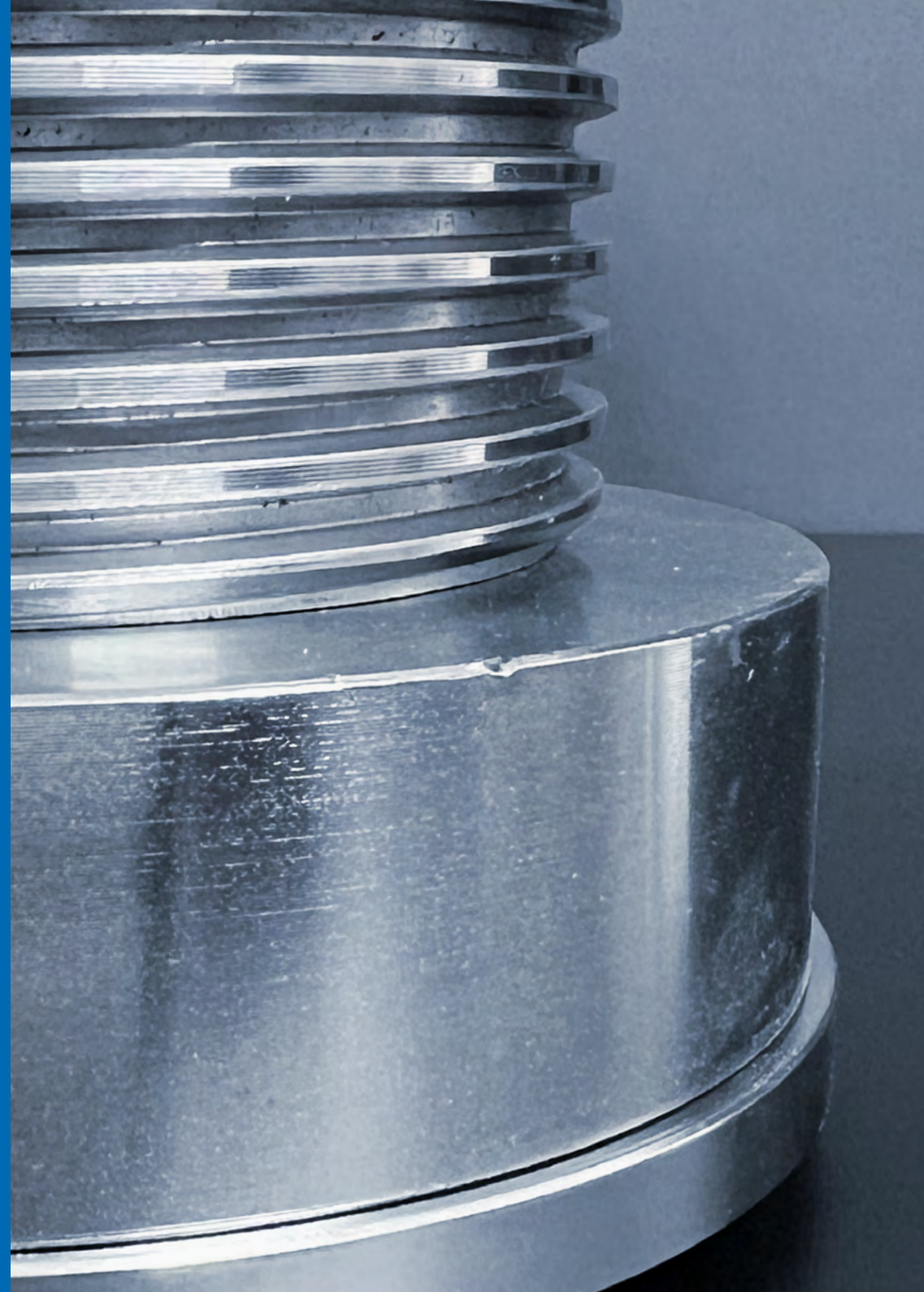




ANP-ES GmbH Equipment Services

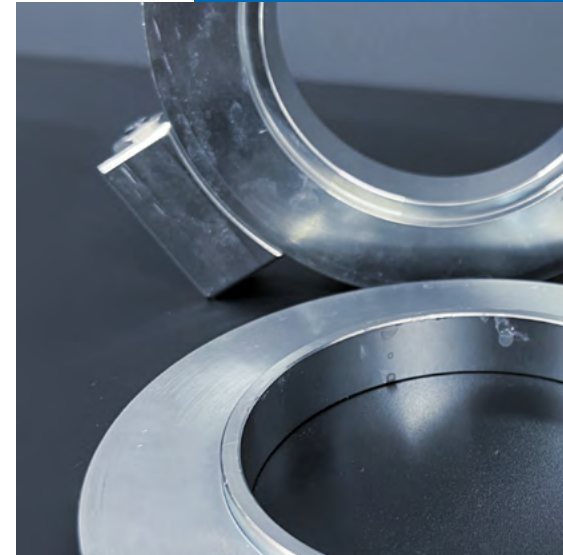
ANP-ES GmbH Equipment Services is a subsidiary of ANP-Systems GmbH based in Grabenstätt am Chiemsee (Bavaria, Germany). In addition to the development, manufacture, sales and maintenance of tensioning presses, hydraulic units, clamping and testing equipment, we offer our customers monitoring systems for geotechnical applications.





ANP HFS® (Head Force Sensor):

The **ANP HFS®** offers the possibility of permanent monitoring of anchor forces on strand and bar anchors. It can be used for force ranges up to 5,000kN nominal load. In addition to the standard dimensions for ANP strand and bar anchor heads, project-specific special designs are possible. Through the use of Wheatstone strain gauge full bridges, the **ANP HFS®** is fully temperature compensated and therefore suitable for use in extreme weather conditions.



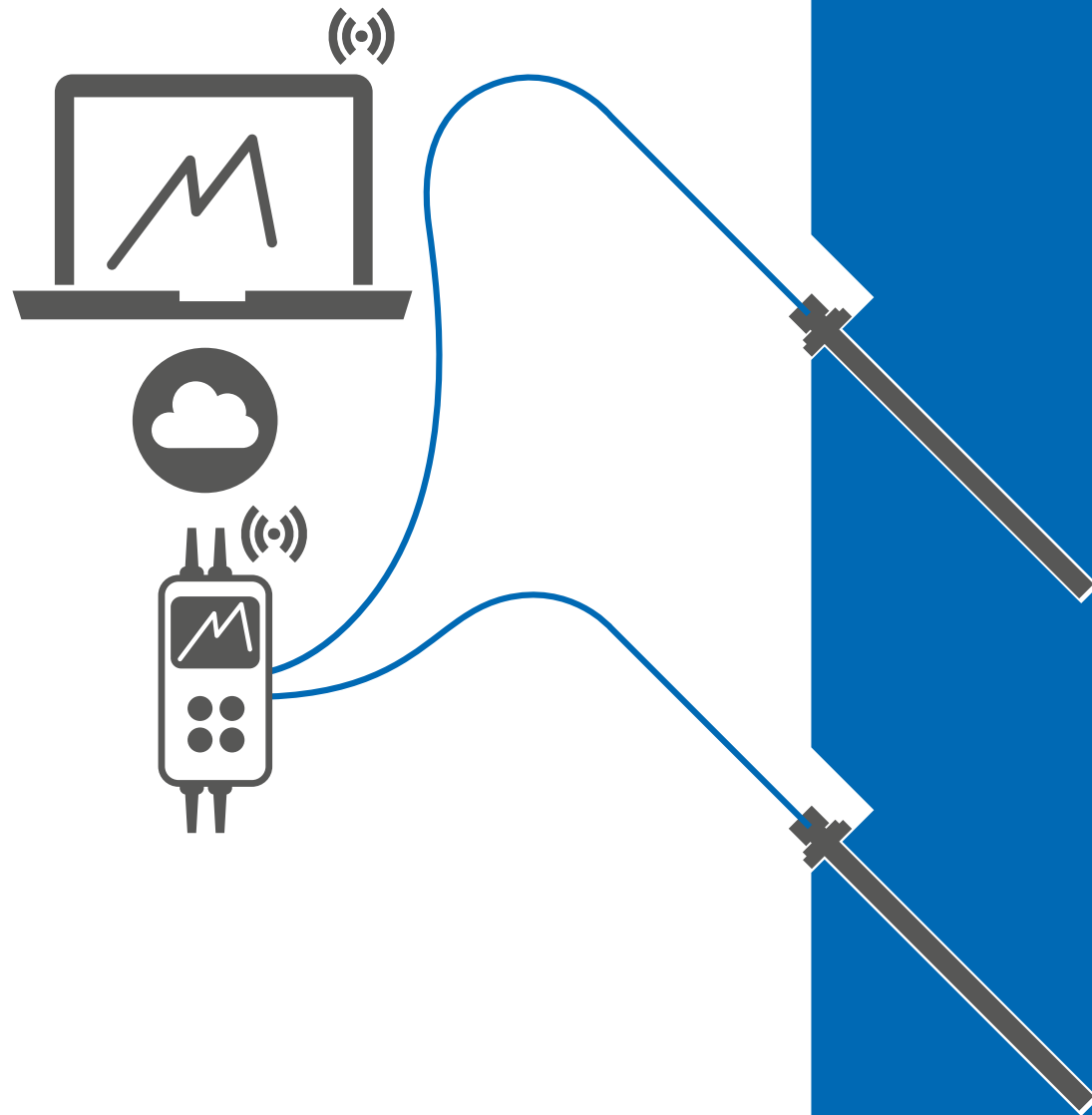


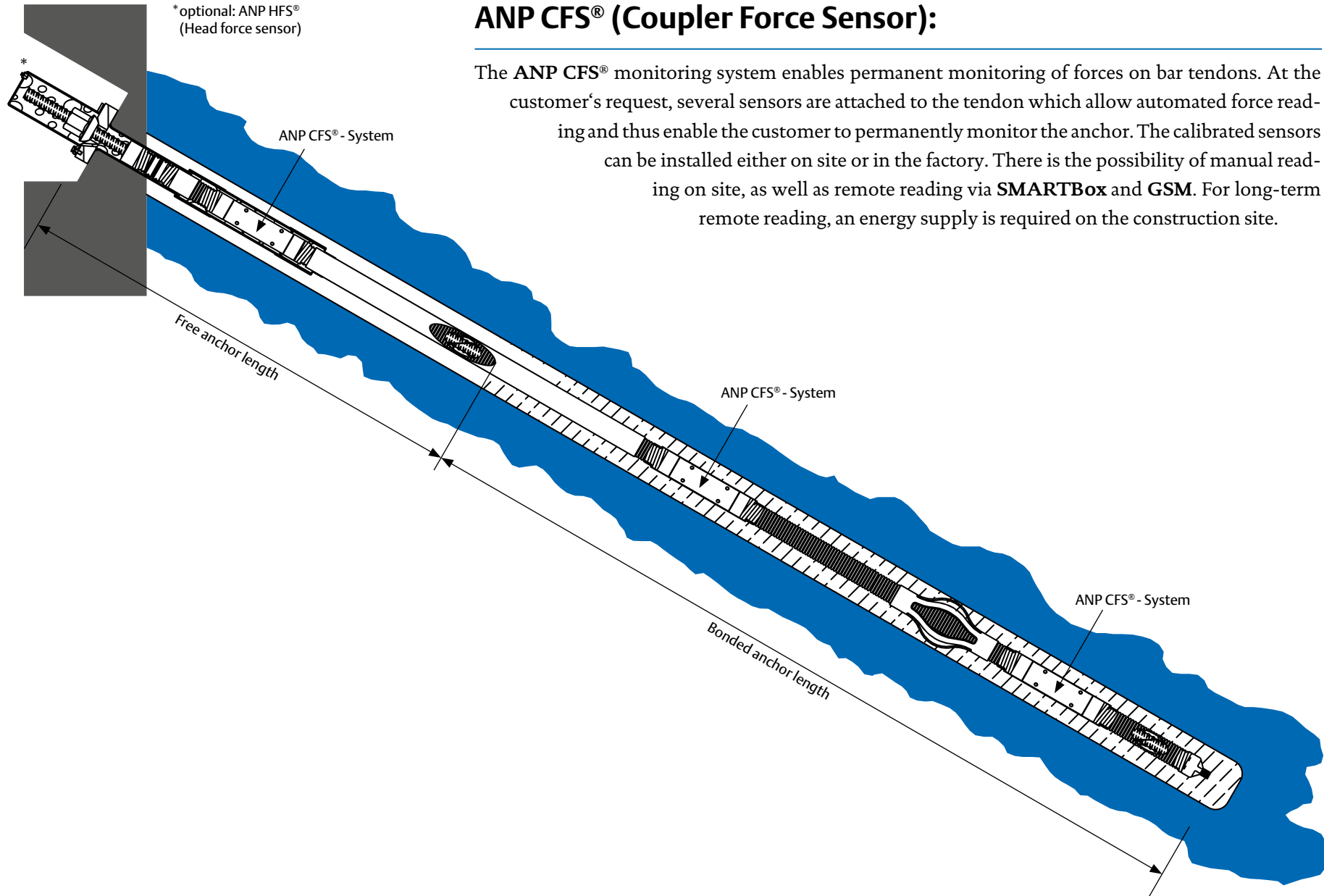
ANP HFS® (Head Force Sensor) Data evaluation manually:

The manual evaluation is carried out with a digital handheld reading device which is connected to the **ANP HFS®** for force reading. The reading device is delivered pre-programmed for the respective calibrated **ANP HFS®**. The connection between the reading device and the **ANP HFS®** is made with a cable up to 25m length. All plug connections are designed to be dust, water and dirt protected.

ANP HFS® (Head Force Sensor) permanent Monitoring:

We also offer our customers the opportunity to carry out permanent monitoring of any number of anchors. For this purpose, the data is transferred to a **SMARTBox** at the installation site and from there to a cloud via GSM. The customer has the option of accessing the data via a PC or mobile end application. The dashboard (the evaluation interface) can be individually designed. For long-term remote reading, an energy supply is required on the construction site.





ANP CFS® (Coupler Force Sensor):

The ANP CFS® monitoring system enables permanent monitoring of forces on bar tendons. At the customer's request, several sensors are attached to the tendon which allow automated force reading and thus enable the customer to permanently monitor the anchor. The calibrated sensors can be installed either on site or in the factory. There is the possibility of manual reading on site, as well as remote reading via **SMARTBox** and **GSM**. For long-term remote reading, an energy supply is required on the construction site.

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